

# Ground property characterization by in-situ tests: A report of TC 16 activities

## Caractérisation des propriétés des sols par les essais in-situ: Un rapport des activités du TC16

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**ABSTRACT:** This report presents an overview of the activities undertaken by the ISSMGE Technical Committee TC 16 on in-situ testing during the period from 2001 to 2005, including our terms of reference, membership, website, and the 2<sup>nd</sup> international conference on site characterization (ISC-2004, Porto), as well as other meetings & events.

**RÉSUMÉ:** Ce rapport présente une vue d'ensemble des activités tenues par le Comité technique TC 16 de la SIMSEG sur essais en place pendant la période de 2001 à 2005, y compris notre mandat, l'adhésion, le site Web, et la 2<sup>ème</sup> conférence internationale sur la reconnaissance géotechniques (ISC-2004, Porto), aussi bien que d'autres réunions et événements.

### 1 INTRODUCTION

TC 16 is the ISSMGE technical committee responsible for activities related to in-situ testing and geotechnical site characterization of the ground. The present committee was officially formed during the *International conference on measurement of soil properties & case studies* held in Bali, Indonesia in May 2001, the *15th International conference on soil mechanics & geotechnical engineering* held in Istanbul, Turkey in August 2001, as well as the initial 6-month startup period with the assistance of President William Van Impe. This report details our activities during the 2001-2005 timeframe.

### 2 TERMS OF REFERENCE

At the onset of our initial term in 2001, TC 16 proposed a five-fold mission with the following objectives and directions:

- To promote, enhance, and improve the utilization of in-situ testing to improve the abilities of the geotechnical engineer in site characterization and the determination of soil properties, including borehole techniques, penetration & probing tests, as well as geophysical methods.
- To establish an international website and email network for interactive communication among the TC 16 members and geotechnical affiliates to share ideas, information, and technical documents.
- To host an international event (ISC-2) and technical symposia to exchange theoretical, practical, and applied research in the area of in-situ testing and geotechnical site characterization.
- To maintain a set of international guidelines and standards for in-situ testing and methods.
- To establish the social relevance of our geotechnical discipline within the research and applied operations of in-situ testing, as related to the public, private, commercial, industrial, and military communities.

In addition, TC 16 members particularly envisioned to work towards a lively set of interactions with their sister Technical Committees TC 10 (geophysical testing) and TC 29 (laboratory stress-strain-testing).

### 3 MEMBERS

The following members participated in the formal makeup of TC 16 during the period 2001-2005:

Amar, S. (France)	Matys, M. (Slovakia)
Bergdall, U. (Sweden)	Mayne, P.W.* (USA)
Cunha, R.P. (Brazil)	McManus, K. (New Zealand)
Denev, D. (Bulgaria)	Mengé, P. (Belgium)
Devincenzi, M. (Spain)	Mlynarek, Z. (Poland)
Durgonuglu, T. (Turkey)	Mulabdić, M. (Croatia)
Fahey, M.* (Australia)	Ovensen, N.K. (Denmark)
Gourves, R. (France)	Peuchen, J. (The Netherlands)
Halkola, H. (Finland)	Popov, V.N. (Kazakhstan)
Howie, J. (Canada)	Powell, J.J.M.* (U.K.)
Huang, A-B.* (Taiwan)	Rahardjo, P.B. (Indonesia)
Imre, E. (Hungary)	Robertson, P.K.** (Canada)
Jamiolkowski, M.** (Italy)	Sandven, R.B. (Norway)
Jaritngam, S. (Thailand)	Santos, A. (Spain)
Kim, J.H. (Korea)	Schnaid, F.* (Brazil)
Kovacs, M. (Hungary)	Silvestri, V. (Canada)
Larsson, R. (Sweden)	Steenfelt, J. (Denmark)
Lunne, T. (Norway)	Tanaka, Y.H. (Japan)
Marchetti, S. (Italy)	Tschuschke, W. (Poland)
Marcu, A. (Romania)	Viana da Fonseca, A* (Portugal)
Mariupolsky, L.G. (Russia)	Yu, H-S. (U.K.)
Massarsch, K.R.** (Sweden)	

\*TC 16 Core Member      \*\*Advisor To TC16

In addition, a group entitled "Friends of TC 16" was established which contained a good number of active participants and who served to promote & enhance the mission of this committee.

### 4 WEBSITE

Thanks to the assistance of Dr. K. Rainer Massarsch, TC 16 established a very active and dynamic website that allowed the dissemination of information, technical events announcements, and email correspondence with its members and affiliates. The website is currently located at:

[www.geoforum.com/tc16](http://www.geoforum.com/tc16)

The TC 16 website was established circa late 2001 and contains information on the membership, mission, events, conferences, equipment, news, and updates, as well as email contact information and geolinks related to in-situ testing and geotechnical site characterization. However, in the future, the TC 16 website in fact may move and can be located via the ISSMGE website at:

[www.issmge.org](http://www.issmge.org)

## 5 MEETINGS

In its preparation stages, TC 16 held meetings during the Bali In-Situ (2001) Conference and at the 15<sup>th</sup> ICSMGE (Istanbul, 2001) in planning its website and for an international conference on site characterization (ISC-2). The 1<sup>st</sup> *International Conference on Site Characterization* was held in 1998 in Atlanta, Georgia, USA and the TC 16 meeting at Istanbul declared that a follow-up conference was deemed warranted for the profession. Professor Antonio Viana da Fonseca of Portugal was approached to host the ISC-2.

An initial meeting was held with President Van Impe during the ASCE *Deep Foundations 2002* conference in Orlando. After the venue and conference timetable were discussed, the ISC-2 was established to be held 20-22 September 2004 in Porto, Portugal. Towards that purpose, planning meetings were held by the TC 16 core members and TC 16 committee in concert with the following events: 2002 December Workshop in Singapore on the *Characterization & Engineering Properties of Natural Soils*; 2003 June Pan American Conference (*Soil & Rock America*, MIT); 2003 Lyon Conference on *Deformation Characteristics of Geomaterials*; as well as during the 2004 April *International Conference on Case Studies* in New York.

The successful ISC-2 conference was held at the Faculty of Engineering at the University of Porto with some 530 international participants. The ISC-2 contained social & technical events in an excellent historic venue with culture & prestige, as described at:

<http://paginas.fe.up.pt/isc-2/main.html>

## 6 ACTIVITIES

Our two major activities during the 2001-2005 period included the TC 16 website ([www.geoforum.com/tc16](http://www.geoforum.com/tc16)) and ISC-2. The latter produced a set of proceedings containing a total of 217 technical papers with 11 invited keynotes and 1910 pages in two-volume hard cover hard copy set with searchable CD rom (Millpress, Rotterdam), as listed in Section 8. The conference established the first *James K. Mitchell Lecture* that was delivered by Professor Hai-Su Yu of the University of Nottingham.

In the planning stages at present are five forthcoming technical events for which TC 16 members have agreed to participate at an advanced level:

- ISP 5 (2005) on the pressuremeter test (PMT) that will be held from 22-24 August 2005 in Paris, France. The host is Michel Gambin of Apageo with details at:

<http://pfe.enpc.fr/>

- DMT 2006 on the flat dilatometer test (DMT) to be held in Washington D.C. from 2-5 April 2006. The hosts are Roger Failmezger and Paul Bullock of In-Situ Soil Testing, and Brian Anderson of Univ. of North Carolina – Charlotte, with details found at:

<http://2006dmt.com>

- GeoShanghai 2006 from 2-4 June 2006 that will have special sessions on in-situ testing. Chair of those sessions will be Prof. Anand Puppala from Univ. Texas-Arlington:

<http://www.geoshanghai.org/>

- CPT 2007 Workshop on cone penetration testing (CPT) to be held in Poznan, Poland. Host is Zbigniew Mlynarek of Agricultural Univ. of Poznan.

- The 3<sup>rd</sup> International Conference on Site Characterization (ISC-3) to be held at the Taipei International Conference Center from 2-4 April 2008. Host will be Professor An-Bin Huang of National Chiao Tung Univ, Taiwan.

Further details and updates will be made available at both the TC16 and ISSMGE websites in due course.

## 7 COOPERATION AND INTERACTION

Several of the activities of TC 16 were conducted in cooperation with its affiliate technical committees on geophysics (TC 10) and laboratory stress-strain behavior of geomaterials (TC 29). In this regard, TC 16 and TC 10 were partnered in the hosting of ISC-2 that included aspects of both geotechnical & geophysical testing for site characterization. For the 2002 Singapore Workshop and 2003 Lyon Conference that was sponsored by TC 29, the TC 16 membership participated in both events due to their importance in relation to geotechnical site characterization.

In addition to these internal ISSMGE affiliations, TC 16 interacted with other professional organizations and societies. TC 16 members were involved with the ASCE Geo-Institute through their Engineering Geology & Site Characterization Committee, helping to produce a geotechnical special publication (GSP 138) related to site characterization & modeling during GeoFrontiers 2005 held in Austin in January 2005. The International Activities Committee (IAC) of the ASCE Geo-Institute also helped provide partial travel funding to the TC 16 chair to attend both the 2002 Singapore Workshop and the 16<sup>th</sup> ICSMGE.

TC 16 members have been involved with ASTM in helping to re-write and amend standards on the vane shear test, cone penetrometer, downhole seismic test, seismic cone, & other procedures, and with ISO/CEN committees drafting new standards on CPTU (this is based on the IRTF drafted previously by TC16), SPT, DP, vane and pressuremeters.

During the SARA 2003 conference, TC 16 members participated with the Pan American Society on Soil Mechanics & Geotechnical Engineering in chairing sessions related to geotechnical site characterization. Integrated in ISC'2, an "International Pile Prediction Event (Class A) on the Behaviour of Bored, CFA and Driven Piles in Univ. of Porto experimental site" has taken place, under the auspices of ITC-18 (ISSMGE, International Technical Committee on "Deep Foundations").

Members of TC 16 have also participated in the Transportation Research Board (TRB) meetings and committee AFP 20 on Exploration and Classification of Earth Materials Committee.

## 8 PUBLISHED DOCUMENTS

Viana da Fonseca, A. and Mayne, P.W., editors (2004). *Geotechnical & Geophysical Site Characterization*, Vols. 1 and 2 (Proceedings, ISC-2, Porto), Millpress, Rotterdam, 1910 pages. See: [www.millpress.com](http://www.millpress.com)